APPENDIX I

The 'Sun Disease'

In his discussions of semiotics, Galen was well aware of the risks involved in attributing robustness and cogency to pathological signs which were general and common to several states. His discussions of this topic, as we have seen,[1] were often occasioned by signs that belong to the domain of fever and are associated with heating and related physiology (perceived extreme temperatures, sweating, trembling, dryness, thirst, confusion). These can be understood medically and medical-historically, but they can also be framed in a different, cultural and iconographic sense. It is in these terms that I believe it is useful to speak of a 'sun disease' or 'summer disease', whose story is not identical to that of *phrenitis*, but which sometimes cuts through it or is entwined with it.[2] This is a long history that involves different Mediterranean and Near Eastern medical and social cultures, in places where high fevers with neurological consequences must have been frequent and often observed in homologous terms, perhaps because of the naturally hot climates in which they occur and the endemic nature of diseases such as malaria, on which much has been written (and reconsidered) over the past hundred years by historians of medicine.[3]

[1] Chapters 4, 5.

[2] That heat and fevers are a central datum in ancient medical observations is obvious and expected; see Hamlin (2014) on the topic. Compare the Hippocratic *Internal Affections* 39, where we have a discussion of typhus: 'This disease comes on in summer, when the Dog Star rises, because of bile being set in motion through the body' (175 Potter = 7.262 L.). The pseudo-Aristotelian *Problemata* 1.19 and 1.29 offer a good summary of ancient medical views of heating, seasonality and pathology, and ps.-Alexander of Aphrodisias wrote a treatise *On Fevers* (*De Febribus,* περὶ πυρετῶν), on which see van der Eijk (forthcoming); the focus is on the concept of heat, 'natural heat' and 'heat contrary to nature' (esp. in Chapter 10); see also the chapters in Bartoš and King (2020) on heat in ancient biology. Nyord (2018) 25–40 has important methodological remarks starting from a case study of the phenomenology of 'heat' in ancient Egyptian medical language and 'conceptual patterns'.

[3] On malaria, see Chapter 1, p. 25. Jones (1909) set the precedent for radical retrospective-diagnosis of malaria in the history of ancient medicine, on which see van der Eijk (2014); see also Grmek (1983/1989) 265–66, 289–92 on fevers and the like in ancient Mediterranean settings; Flemming (2018) in a discussion of the Antonine plague and Galen's time as a 'pestilential age'; Sallares (2002); Scheidel

Perhaps the chronologically earliest scholarly parallel to *phrenitis* based on this feverish quality is to be found in Babylonian medicine. Although it is important to be deeply sceptical about strong claims of identity between Babylonian and Greek medicine in the case of *phrenitis*, given the lack of detailed support for the thesis, a syndrome found in this material can be taken to connect with an overarching 'sun disease'. Scurlock, who argues for a firm Babylonian antecedent, claims that *phrenitis* is 'a clear example of the transformation undergone by Mesopotamian material in the process of transmission',[4] identifying it with a precise Near Eastern disease whose name in Akkadian is *setu*.[5] In this spirit, Scurlock identifies a predecessor of Hippocrates in many respects in the twelfth-century BCE Assyrian doctor Esagil-kīn-apli. *Phrenitis* is her example:

> The ancient Greek mystery disease (*sic* !) *phrenitis* makes a nice illustration of the transformations undergone by Mesopotamian material in the process of transmission. *Phrenitis* is one of the four 'thick' diseases, a literal translation of Akkadian *murus kisirti*, which means illnesses characterized by thick sputum. One thinks immediately of pleurisy and pneumonia, which are indeed two of the 'thick' diseases.

She then mentions a passage in the Hippocratic *Internal Affections* where a disease (not referred to as *phrenitis*) caused by 'heat of the sun' is described in ways that closely resemble descriptions of *peripleumonia* and *kausos* elsewhere:

> As for *phrenitis* (*Internal Affections* 48), it is unmistakably the Ionian Greek equivalent for Mesopotamian 'hand of ghost'. It is presumably the original attribution of this condition to affliction by a ghost that led the author of *Internal Affections* 48 to assert that *phrenitis* 'usually attacks abroad, if a person is traveling a lonely road somewhere, and fear seizes him'.

Note first of all that *Int.* 48 does not mention *phrenitis*, but only the *phrenes* as the affected part; Scurlock's imprecision is not a problem here, however, since we are considering the 'sun disease' as a more general, somehow 'aural' category. Scurlock then moves on to scrutinize diverse Hippocratic passages, categorizing them in terms of how successfully they 'disentangle the Mesopotamian causal agents to whom diseases of the upper respiratory

(2003), (2009) on Rome; Nutton (2004) 32–34 for a general assessment; Hamlin (2014) 1–21 for definitions and problems in studying ancient fevers, and the pitfalls of essentialism, since 'it is tempting to see fever as independent of language and culture and to assume that persons in the past were identifying the same conditions and features that we do, only in qualitative terms, but caution is in order' (7); Craik (2020).

[4] Scurlock (2004) 27. [5] I thank Ulrike Steinert for her invaluable help with this material.

tract and lungs were attributed', which are the same diseases – on her reconstruction – as those which cause meningo-encephalitis.[6] In this way, the confusing syndromes described by the Hippocratics, with their mix of respiratory and encephalic ailments, are explained by the fact that they were 'not innovators but were instead attempting to build indirectly on the foundations laid by Mesopotamian physicians'.

This reasoning might be historiographically flawed, but it usefully exposes the nosological 'megatext' that connects heat and heating with disease and derangement.[7] As much as one must avoid retrospective biomedical investment in these ancient stories, there is certainly some degree of medico-biographical truth to be extracted from them, namely the well-known fact that high fevers must have been endemic and dangerous around the Mediterranean for millennia. This also helps explain the appeal and 'catchiness' of *phrenitis* as quintessential to these elements of human pathology.

The connection between heating and life, not only as vital functions but as spiritual and mental life,[8] is evident in a variety of cultural associations between heat and psychology which see heating as both necessary to life and potentially morbid, depending on its degree. Several of these functions were explored in Chapter 1, but Stefanelli's work deserves renewed mention, and in particular her suggestive proposal of an etymological link between *phren-* and an Indo-European root for 'burn';[9] the *phren(es)* would then be the upper cavity in the chest which works as a 'steamer' or 'burning chamber' in the body. A long tradition of natural philosophy associates heating with life, as notably in Aristotle's conception of digestion as a kind of 'coction', on which there is no need to dwell here, and in Themison[10] as discussed at Caelius Aurelianus, *On Chronic Headache*[11] (*De capitis passione, quam Graeci Cephalean nominant, Morb. Chr.* 1, 1 446.33–448.5 Bendz):

> The head is naturally lacking in flesh, but has an abundance of fibres and is covered with tough skin and hair and pores that do not naturally permit easy breathing. It is also the site of all the senses and rests upon the body and receives all the vapours from it. For the *pneuma* naturally seeks higher levels

[6] Scurlock (2004) 28, see 29 for a bio-medical retrospective interpretation in terms of Bornholm disease.

[7] For a more helpful take on the retrospective diagnosing of 'hand of ghost' in particular, see Kinnier Wilson and Reynolds (1990); already Kinnier Wilson (1965).

[8] See Bartoš (2020). [9] Stefanelli (2010) 19–96. [10] See Pigeaud (1994) 33.

[11] A disease caused by extreme temperatures, whether cold or hot through exposure to the burning sun (*solis exustione*, 430.13–16 Bendz).

> and carries these vapours from the lower parts through to the windpipe and the oesophagus, which are, so to speak, the major chimneys (*veluti maiora fumaria*) of the body.

As Wright observes, it is also relevant to *phrenitis* to mention the natural 'coldness' and phlegmatic nature of the brain, as opposed to the 'hotness' of the heart from Aristotle onwards.[12] A cardiocentric definition of fever beginning with overheating in the heart is also evident in the Peripatetic *De febribus*.[13]

As for pathology, heating, thirst and feverish complaints are everywhere in Hippocrates, although he mostly categorizes *phrenitis* as a winter ailment akin to *peripleumonia* and *pleuritis*;[14] the heat of the sun (*thermasiē tou hēliou*) is also declared responsible at *Int.* 47 (226–31 Potter = 7.281–84 L.), despite the fact that the reference is neither to *phrenitis* nor explicitly to the affected *phrenes*. In his discussion of *phrenitis*, on the other hand, Asclepiades is said by Caelius (*Morb. Ac.* I, 2, 38–39 Bendz) to have regarded the summer season and heat as important factors when he discussed individuals considered *labiles*, prone to the disease *phrenitis*:

> Some physicians, among them Asclepiades and his followers, also consider in this connection the weather, the season . . . They speak of the weather and the danger of it becoming very hot, for that causes many cases [of this disease]. They speak of the season too, especially the end of summer or autumn, for they say that this disease is common at those times. They speak of antecedent causes, such as . . . and exposure to heat (*iuges adiustiones*).

In a non-technical context, Lucian reports an interesting episode of deranged summer fever in *Quomodo historia conscribenda sit*, 1.1.14:[15]

> They say that an epidemic of the following sort occurred at Abdera . . . It began with the whole population exhibiting feverish symptoms (*pyrettein*), strongly marked and without intermission from the very first attack. About the seventh day, the fever was relieved, in some cases by a violent flow of blood from the nose, in others by a no less violent perspiration that overcame them. The mental effects (*pathos . . . tas gnōmas autōn*), however, were quite absurd; they undertook tragic performances, mouthing iambic lines and ranting at the top of their voices. Their favourite text was the *Andromeda* of Euripides, and one after another they would go through the

[12] Wright (2016) 68–69. [13] Chapter 2. See van der Eijk (forthcoming). [14] See above, p. 323.
[15] On this passage and medical influences, from the particular angle of Aristotle's theory of tragic *katharsis*, see Langholf (1996).

> speech of Perseus; the whole city was full of pale presences and seventh-day tragedians crying out in a loud voice:
>
> O Love, who lord'st it over gods and human beings,
>
> and the rest of it. This continued for a long time, until the coming of winter put an end to their madness with a sharp frost (*kryos de mega genomenon epause lērountas autous*). I find the explanation of the form it took in the fact that the tragic actor Archelaus, who was famous in that period, had performed the *Andromeda* there in mid-summer during some very hot weather (*mesountos therous en pollōi tōi phlogmōi*). The consequence was that many of them caught the fever in the theatre, and after they convalesced, there was a relapse into tragedy, with the *Andromeda* haunting their memories for a long time and Perseus hovering, Gorgon's head in hand, before the mind's eye of every individual.

This passage and this illness will be mentioned in modern times by Van Swieten in his discussion of *phrenitis*,[16] in which he readily identifies it with our disease. For him, the passage from Lucian is a good illustration of what he takes to be the obvious connection between sun, summer and disease already in ancient times. The hallucinatory experiences, fever and epidemic character of the ailment are explicitly connected with the heat – a 'mass possession' quality that also belongs to the popularization of *phrenitis*.[17]

The idea recurs in Galen as well:[18] at *On the Affected Places* 3.7 (8.166.5–9, 167 K.), we read that memory can be affected by drying and overheating agents, as in the case of the vineyard worker exposed to the sun, or the man who devoted himself too intensely to his studies. At *Com. Hipp*. 2.7 (186.4–8 Mewaldt = 7.651.2–6 K.), Galen writes that

> it is under the same constitutions and causes that both the *kausoi* and the *phrenitis*, assuredly, multiply in the summer and in hot regions (*pleonazousi tēn therinēn kai en chōriois thermoterois kai en hēlikiai tēi tōn akmazontōn kai en physesi thermoterais*) and in the prime of life and in those whose natures and adopted regimes and activities are likewise most hot.

So too at *Comm. Hipp. Prorrh*. I.17 (33 Diels = 16.552 K.) Galen comments on a Hippocratic statement including crusty eyes as signs of *mania*, adding

[16] See Chapter 8, pp. 323–24.
[17] Cf. Chapter 6 on the Christian trope of humanity as a 'possessed', phrenitic mob.
[18] In this, Galen seems to differ from the Hippocratic interpretation of *phrenitis* as a winter ailment, and at *Comm. Hipp. Epid. I*, 2.74 (17a.177 K.) he comments on the Hippocratic claim that 'there were a few cases of *phrenitis* also in the summer' (which seemed to imply that the majority were in the winter). On the classification of *phrenitis* as a 'hot' disease, see Devinant (2020) 219 n. 48, 220.

that phrenitic and putrefying persons share these symptoms, which arise in the summer as a result of extreme heat.[19]

Regarding the connection between *phrenitis* and summer heat, an additional cultural suggestion is found in ps.-Alexander of Aphrodisias, where a passage discusses the example of dogs maddened in the summer and evokes *phrenitis* (*Probl.* 1.76):

> Why do only dogs become mad in the summer (*en therei*)? Because of the *prolepsis* of the dry mixture (*tēs xēras kraseōs*): for they are dry by nature, and especially during the summer heat (*en tois kaumasi*), and therefore the humid component and *krasis* in them burns ardently when they are heated and dried. They accordingly rave as if they were phrenitic (*kathaper phrenitiōntes*).

The susceptibility of animals to the summer heat, the *canicola*, brings in other popular elements of pathology that also provide background for *phrenitis*: the madness of dogs, the canine-looking *lyssa* or rabies that can possess a patient.[20] Paul of Aegina also writes, in the conclusion to his section on *phrenitis*, that 'one should accompany the recovery of these patients by making them avoid too much wine, powerful emotional alterations, spoiling of food and *most of all exposure to the sun* (*hēliokaïas*)' (3.6.2, 146.15–18 Heiberg).

This idea remained in the tradition of *phrenitis*, as the reference in Van Swieten has already shown: in the medieval *Isagoge Ioannitii ad Tegni Galieni* (*Hunayn's Introduction to the Art of Galen*), in the section 'about the characteristics of diseases deriving from heat' (*de modis morborum ex calore precedentium*) 'sun exposure' (*expositio ad solem*) is mentioned, while Avicenna specifies that phrenitic patients often shrink from sunlight (*abhorrent radios, et avertunt se ab ipsis*). Gentile da Foligno (fourteenth century) in his commentary on Avicenna's *Canon* speaks in the section on *phrenitis* (*karabitus*) of 'boldness and anger' of these patients, which are a consequence of heat (*audacia et ira propter fervorem caloris*). A long passage is also devoted to the pathological relationship of these patients to drinking water (folio 58), while at folio 64 we read, as a comment on Avicenna's warning against the 'hot and malignant winds' (*ventis malis et calidis*) and the 'sun of the high summer days' (*canicularibus diebus et*

[19] See Chapter 5, n. 153.

[20] It is no coincidence that Euripides described the mad Bacchants as 'bitches of Lyssa' in their flight to the mountain: ἴτε θοαὶ Λύσσας κύνες, ἴτ' εἰς ὄρος, *Ba.* 977). Heat, summer, symbolic and real, and the astronomical *Canis* are all combined together. See Metzger (2011), esp. 155–70 on lycanthropy and the dog element associated with mental disorder (in this case mostly melancholy).

solem), that the passage is obvious and needs no exegesis: *hec pars est clara*. For Bernard de Gordon (beginning of the fourteenth century),

> young age with a choleric temperament, the summer season – the fact that he exerted himself during the days of the Dog especially (*tempus aestivum, et quia laboravit in diebus canicularis*), and stayed in the sun without a hat, as well as eating hot and other similarly warming food, which can heat up the body and cause it to dry (*quae corpus calefaciunt et desiccant*),

can all play a role in determining *phrenitis.*

Workers such as farmers are especially exposed: Van Swieten recalls the case of two reapers/mowers who were extremely healthy (*messores sanissimos certe & robustissimos*) but died two days after having fallen asleep in the sun on a stack of hay. As we have seen in Chapter 8, De Vries also mentions sun exposure, while Hooper distinguishes as 'exciting factors' exposure to sun and 'exercise in warm water'.[21] Gee (1876) 15 also had cases of phrenitic children where exposure to heat played a role. One sub-type of *phrenitis* in the final decades of its active existence is precisely *Phrenitis Calentura*, heatstroke.

There is thus what we may call a 'sun disease' that characterizes Mediterranean and Near Eastern cultures (and might have parallels in other cultural contexts as well) and that continues to be observed by European medical authors in modern times. This disease brings together a panoply of 'feverish' physiological signs; hallucinatory experiences; mental confusion; the summer season and hot weather; the concept of 'inflammation', *phlegmonē*, of a specific body part;[22] meteorological determination; and a sense of epidemic or mass experience, to which everyone is equally exposed.[23] Assonance also plays a role: *phrenesia*, *frantic* and related terms, and effervescence and fervour as terms for 'boiling', are semantically distinct, but are evoked together as part of the pathological experience of *phrenitis* in its popular reception. This branch of the story as well, despite its diffuse, anti-philological character, is part of a cultural history and works as an episodic, sporadic vehicle for the persistence of our disease.

[21] Hooper (1815) 9.

[22] On fever and *phlegmonē*, see the early discussion attributed to Antiphon quoted by Galen in *On Medical Names*, D28 (IX.45 Laks–Most).

[23] One can invoke here a folk parallel, the *tarantismo*, forms of recursive dance-epidemics studied by anthropologists (see famously Dodds 1951, 76–79, 270–75, 279 n. 9). Attacks of *tarantismo* are characterized by a heightened sensibility to music and spastic dance movements; they occur in the summer at midday. See the classic study by De Martino (1961) and afterwards De Giorgi (1999). De Martino (1961) 98, 101, 148 also notes that these attacks tend to be triggered by 'a mezzogiorno'; see 76–77, 118–19, on interpretations connecting these phenomena with cases of 'heatstroke'.